



New England (HHS Region 1)

ATTC

Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

The New England ATTC Proudly Presents...

Improving Care of Substance Use, HIV, and/or HCV in Adolescents:

Effective Approaches to Assessing, Treating, and Engaging Teens

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Assessment, Treatment & Continued Care of Adolescent SUD: Challenges & Opportunities

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CYT

Cannabis Youth Treatment Randomized Field Experiment



● **Coordinating Center:**
Chestnut Health Systems, Bloomington, IL, & Chicago, IL
University of Miami, Miami, FL
University of Conn. Health Center, Farmington, CT

■ **Sites:**
U Conn. Health Center, Farmington, CT
Operation PAR, St. Petersburg, FL
Chestnut Health Systems, IL
Children's Hosp. of Philadelphia, PA

☆ **Sponsored by:** Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), U.S. Department of Health and Human Services

Do you know a **teenager** struggling with MJ use?

For more information,

Contact Rebecca @ 860-679-8478 or burke@uchc.edu

Dr. Yifrah Kaminer, IRB#12-078-3



ATOM STUDIES @ UCONN Health Center
Helping teenagers struggling with substance abuse for over 12 years!

Struggling with sadness? Alcohol use getting in the way?

- ~ Are you 13-18 years of age?
- ~ Do you struggle with alcohol abuse (with or without other substance use) and depression?
- ~ Do you want to get help?

If you are a teenager who is struggling with alcohol use and depression and would like to learn more about the ATOM Programs

T-TAAD Study at UCONN HEALTH, please call

- **Rebecca @ (860) 679-8478 | burke@uchc.edu**
- **Marcia @ (860) 679-3341 | lawlor@uchc.edu**
- **Kaminer@uchc.edu**



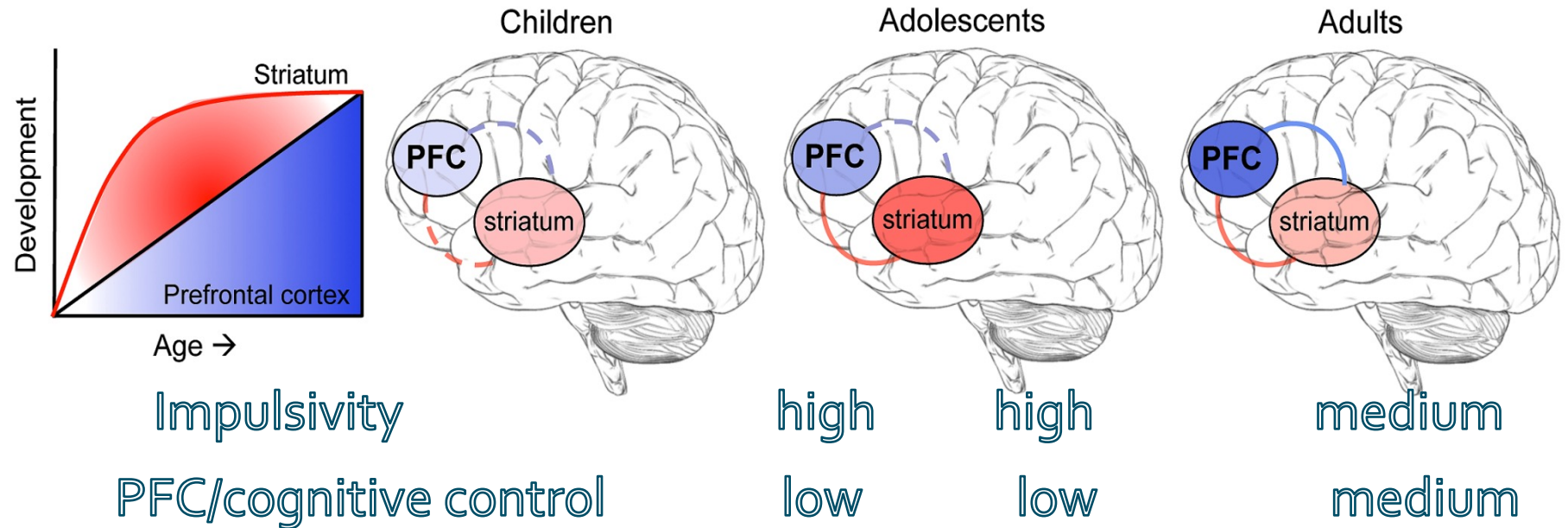
ALL CALLS AND E-MAILS ARE CONFIDENTIAL.

This research study is funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and directed by Dr. Yifrah Kaminer. IRB # 14-185-3

Objectives of the Presentation

- Clarify adolescent increased risk for drug use/abuse from a developmental perspective
- Address screening, assessment, interventions (prevention, treatment, aftercare) including the dually diagnosed
- Examine mechanisms of behavior change (MBC) and pre-, during and post-treatment outcomes
- Discuss implications of findings and future directions

Vulnerability to SUD and Psychiatric Disorders



Environment and activities during teenage years guide selective synapse elimination (“pruning”) during critical period of adolescent development. “What teens do during their adolescent years - whether it's playing sports - video games - can affect how their brains develop.” *J Giedd*

(Casey, 2010; Safren et al 2005; Klingberg et al 2002)

The Importance of the Frontal & Pre-Frontal Brain for Development

- **Thinking skills:** Identify, prioritize, problem solving and integrate
- **Executive Functions (EF):** Language-processing, emotion regulation, cognitive flexibility, & social skills
- **Youth dysregulation:** Affect, cognitive process, impulses, and self perception
- **Emotional development** (i.e., maturation) “meets” cognitive development only around age 26
- The pivotal questions is how to proactively address triggers before the emergency sets in?

Erikson's Lifecycle Chart: Adolescence

IDENTITY vs. IDENTITY DIFFUSION

- Anticipation of Achievement Vs. Work Paralysis
- Role Experimentation vs. Negative Identity
- Leadership Polarization vs. Authority Diffusion
- Ideological Polarization vs. Diffusion of Ideas

Adolescent SUDs Occur in the Context of Development

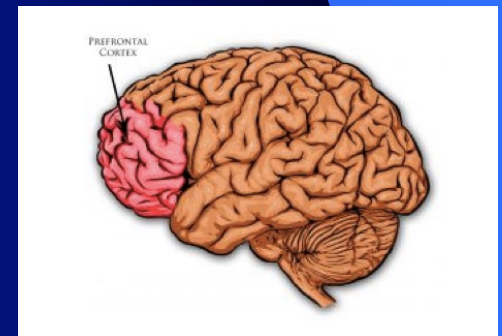
- **Biological** (pubertal, neuro-anatomical/transmitters)
- **Socioemotional** (family/peer/intimate relations, emotional ability and management)
- **Cognitive** (information processing, executive functioning)
- **Behavioral** (risk taking, self-regulation)

The Adolescent Pre-Frontal Cortex: Drug Effects

Drugs exert persistent neurobiological effects that extend beyond the midbrain centers of pleasure and reward to disrupt the function of the frontal cortex where risks and benefits are weighed and decisions are made. More specifically, the site of control over motivation, behavior, and inhibitions of behaviors.

The developing adolescent brain is more sensitive to drug effects. Delaying onset from age 14 to 21 is associated with X7 for binge drinking and X5 for SUD.

(Chambers et al. 2003)



Desired Properties of a Screening Instrument

Define screening for what?

Single vs. Multidiagnosis or Risk

- Brief <10 questions (e.g., PESQ, SASSI)
- Quick and easy to score
- Developmentally appropriate (how young?) and acceptable to responders
- Adaptable to different formats/settings
- Reliable, valid, sensitive and specific

CRAFFT Screener

- C Have you ever ridden in a *car* driven by someone (including yourself) who was “high” or had been using alcohol or drugs?
- R Do you ever use alcohol or drugs to *relax*, feel better about yourself, or fit in?
- A Do you ever use alcohol or drugs while you are by yourself, *alone*?
- F Do you ever *forget* things you did while using alcohol or drugs?
- F Do your family or *friends* ever tell you that you should cut down on your drinking or drug use?
- T Have you ever gotten into *trouble* while you were using alcohol or drugs?

Universal Prevention Approach

- **Universal Approach:** addresses the entire population in the setting regardless of level of risk
- **Aim:** delay of onset by providing information and skills
- **Content:** awareness education, promoting social and drug resistance skills
- **Advantage:** a large scale operation without stigmatization
- **Effectiveness:** actual substance use reduction has not been consistently demonstrated

Selective Prevention Approach

- **Selective Approach:** Targets individuals at greater risk and need. Therefore, has an economical advantage.
- The challenge is identifying those individuals, tailoring an intervention and avoiding stigmatization.
- Four personality risk factors for early onset risky behaviors (**targeted interventions**):
 - Hopelessness;
 - Anxiety-Sensitivity;
 - Impulsivity;
 - Sensation-Seeking

Personality-Based Interventions

- All students are screened in classroom settings
- Participants are those scoring 1 standard deviation above the school mean on one of these four personality traits
- Coping skills workshops two 90-minute group sessions
- Manualized interventions incorporating psych-ed, CBT/MI
- Include real life ‘scenarios’
- Addressing thoughts, emotions, behaviors in personality-specific ways

Results: 50-60% decreased likelihood of binge drinking in 6 months; 4-6 individuals required to prevent 1 case of BD

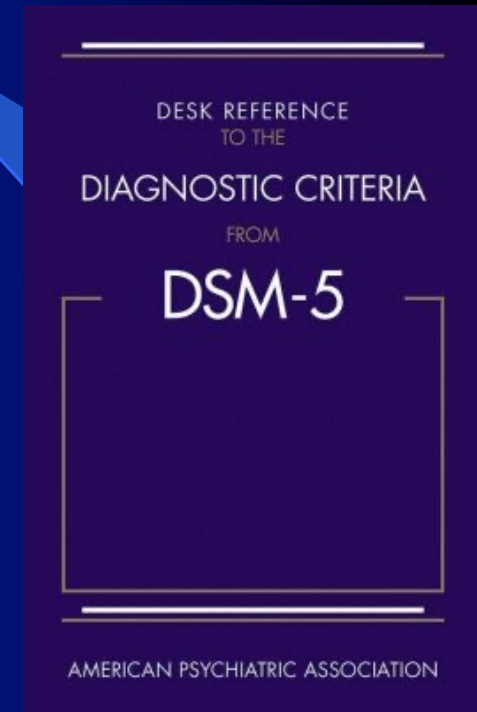
Youth (**Un**)Friendly DSM?

- Most DSM-IV diagnostic criterion items are valid for adolescents
- Tolerance and impaired control items are problematic
- Some adolescents with significant drug and alcohol problems were not identified by the DSM-IV
- A substantial proportion overcome their problems and transition to abstinence or normative drinking in adulthood
- DSM-V: Substance Related and **Addictive** Disorders.
- No more Abuse and Dependence categories
- A low threshold of 2/11 symptoms (e.g., craving, using in hazardous conditions)

DSM-5 Criteria for Youth: Lost in Translation?

- **Tolerance** - might be normative in youth.
- **Withdrawal** - fairly rare in youth.
- **Hazardous use** - does it reflect “developmental” use?
- **Craving** - how is it defined or operationalized?
- **Conclusion** - despite some favorable changes, the DSM-5 SUD criteria do not go far enough toward improving SUD diagnosis for youth. We need developmentally informed adjustments.

(Kaminer & Winters (JAACAP: in press))



Assessment of Adolescent SUD

- Comprehensive and multidimensional (e.g., drugs, psychiatric, medical, school, legal, family, social, employment)
- Drugs: what, how, combination, frequency (days of use, heavy drinking), dosage, consequences
- Self report usually reliable when there are no legal contingencies
- Commonly used: GAIN, T-ASI, C-ASI, PEI

(Winters & Kammer (JAACAP; 2008))

When Does Treatment Start and How Does it Work?

- **SBIRT**: Screening, brief intervention and referral to treatment.
- From assessment reactivity to aftercare
- Evidence Practice vs. practice based evidence? (John Kelly 2008)
- Mechanisms of Behavior Change (MBCs)
motivation/readiness to change (**commitment to treatment goal?**), self efficacy, coping response

Active Ingredients for Brief Intervention

- **F** – **F**eedback on personal risk or impairment
- **R** – **R**esponsibility to change
- **A** – **A**dvice to change
- **M** – **M**enu of alternatives
- **E** – **E**mpathy as an intervention style
- **S** – **S**elf-Efficacy

(Miller & Sanchez, 1994)



Pre-Treatment Assessment Reactivity (AR)

- AR: A change from (+) to (-) drug use from baseline evaluation to 1st session
- All 177 adolescents were positive for alcohol use at baseline. 51% reported being abstinent at 1st session
- 145 adolescents were positive for any substance use at baseline, 29% were abstinent (drug urinalysis) at 1st session
- Age, gender and referral source (e.g., legal) were not significant in determining AR

Assessment Reactivity Mechanisms

- It is possible that these youth have already decided to quit using?
- Telling someone in the social network about the coming treatment might have resulted in a change?
- Assessment per se supported mechanism to change (FRAMES)?



Assessment Reactivity: Conclusions

- In order not to attribute change in adolescent SUD exclusively to treatment interventions, AR should be considered in any analysis of treatment outcomes
- Future research is necessary to replicate the findings and examine the mediators and moderators affecting AR

(Clifford & Maisto 2000; Epstein et al. 2005)

Key Elements of Effective Youth Drug Treatment

- Assessment and Treatment Matching
- Comprehensive -Integrated Approach
- Family Involvement in Treatment
- Developmentally Appropriate Program
- Engaging and Retaining Teens in Treatment
- Qualified Staff
- Gender and Cultural Competence
- Evaluation of Treatment Outcome
- Continuing Care

(Brannigan et al. 2004)

Contracts for Toxicology Assessments

1. Teen and parent contracts
2. Contingencies for use
3. Contingencies for rewards
4. Plan to discontinue
5. Contingency for future checks



Promising Short-Term Treatment Strategies

- Behavioral therapy (Azrin et al., 1994)
- Cognitive-Behavioral therapy (Kaminer et al., 2008)
- Motivational Interviewing (Monti, 1999)
- 12-Step Minnesota Model (Kelly et al. 2000; Winters, 2000)
- Family therapies (MDFT – Liddle & Dakof, 1995; FFT-Waldron et al., 2001; MST-Henggeler et al., 1996)
- Contingency Management (Stanger & Budney 2010)
- Combination therapies: A) integrative psychosocial (CYT study; Dennis et al., 2004), B) medications & psychosocial interventions for dual diagnosis (Hersh et al. SAJ; 2014).

Purpose of CYT

- To learn more about the characteristics and needs of adolescent marijuana users presenting for outpatient treatment.
- To adapt evidence-based, manual-guided therapies for use in 1.5 to 3 month adolescent outpatient treatment programs in medical centers or community based settings.
- To field test the relative effectiveness, cost and cost-effectiveness of five interventions targeted at marijuana use and associated problems in adolescents.
- To provide validated models of these interventions to the treatment field in order to address the pressing demands for expanded and more effective services.

CYT Design

- **Target Population:** Adolescents with marijuana disorders who are appropriate for 1 to 3 months of outpatient treatment.
- **Inclusion Criteria:** 12 to 18 year olds with symptoms of cannabis abuse or dependence, past 90 day use, and meeting criteria for outpatient treatment
- **Data Sources:** self report, collateral reports, on-site and laboratory urine testing, therapist alliance and discharge reports, staff service logs, and cost analysis.
- **Random Assignment:** to one of three treatments within site in two research arms and quarterly follow-up interview for 12 months
- **Long Term Follow-up:** under a supplement from PETSA follow-up was extended to 30 months (42 for a subsample)

Two Experiments or Study Arms

Experiment 1 Incremental Arm

Randomly Assigns to:

MET/CBT5

Motivational Enhancement Therapy/
Cognitive Behavioral Therapy (5 weeks)

MET/CBT12

Motivational Enhancement Therapy/
Cognitive Behavioral Therapy (12 weeks)

FSN

Family Support Network
Plus MET/CBT12 (12 weeks)

Experiment 2 Alternative Arm

Randomly Assigns to:

MET/CBT5

Motivational Enhancement Therapy/
Cognitive Behavioral Therapy (5 weeks)

ACRA

Adolescent Community
Reinforcement Approach(12 weeks)

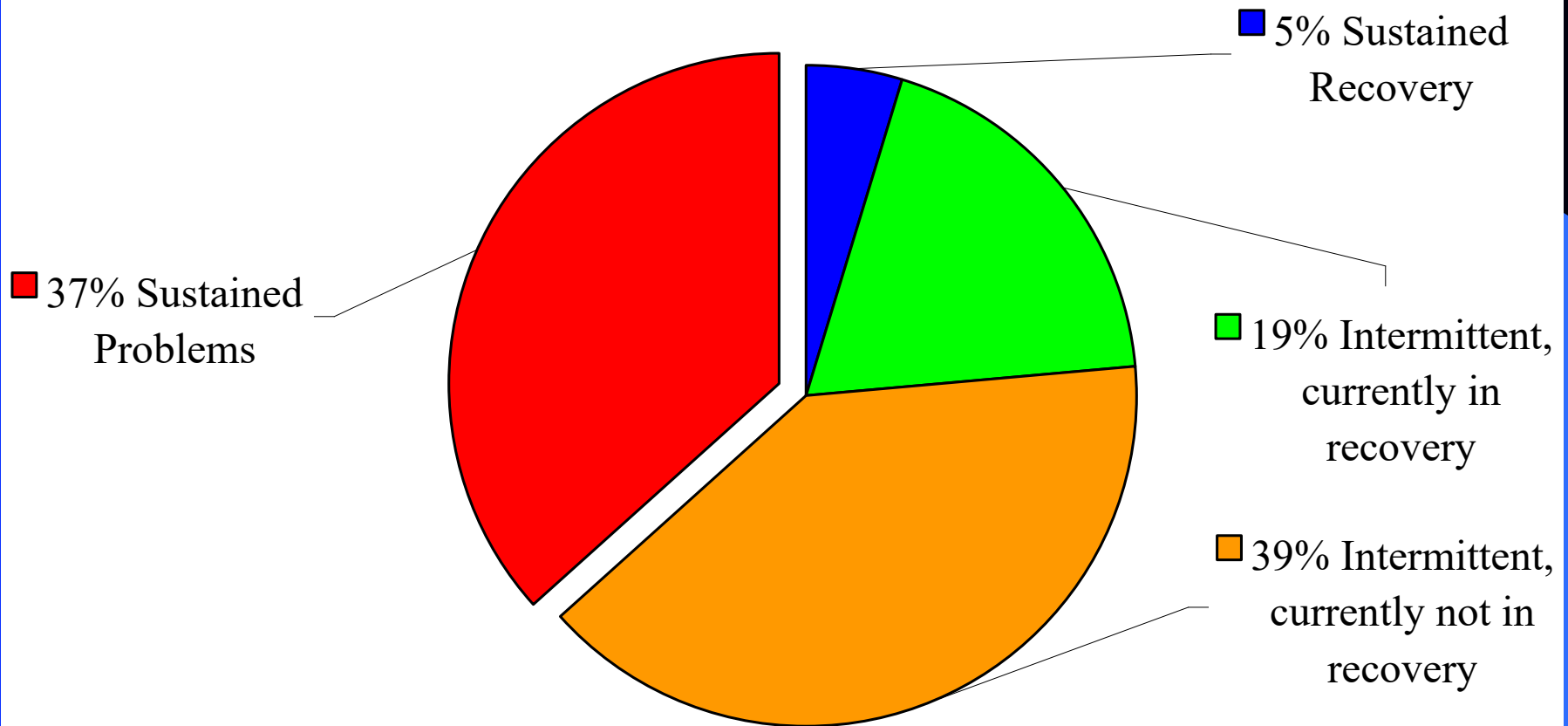
MDFT

Multidimensional Family Therapy
(12 weeks)

Clinical Outcomes

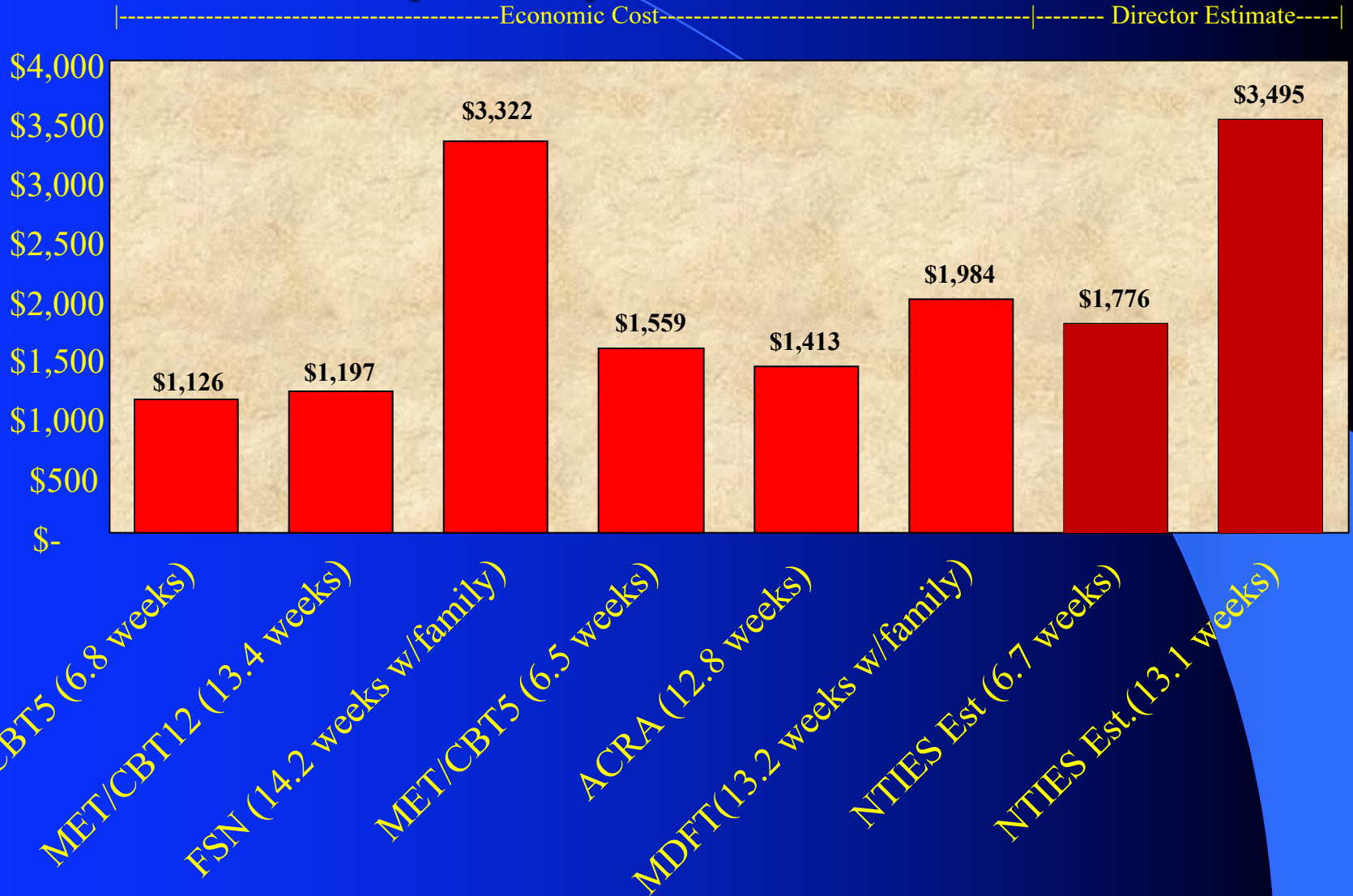
- **Co-occurring problems** were the norm and varied with substance use severity.
- **Treatment effects:** Most came during the active phase of treatment and were sustained or improved during the 12 months of initial follow-up; though longer term follow-up suggests that some ground was lost.
- **Treatment type:** While there were some treatment differences, these were not easily explained by dosage or level of family therapy and produced only minor improvements.
- **Effectiveness:** While more effective than prior outpatient treatments, 2/3 of CYT youth were having problems 12 months later, 4/5 were having problems 30 months latter.

Cumulative Recovery Pattern at 30 months: Majority Cycle in and out of Recovery



Average Episode Cost (\$US) of Treatment

Average Cost Per Client-Episode of Care



(French et al., 2002)

Economic Outcomes

- There were considerable differences in the cost of providing each of the interventions.
- MET/CBT-5, -12 and ACRA were the most cost effective at 12 months, though the stability of the MET/Findings were mixed at 30 months.
- Results of clinical outcomes and cost-effectiveness, and benefit cost were different – suggesting the importance of multiple perspectives

Black & Chung (SAJ; 2014)

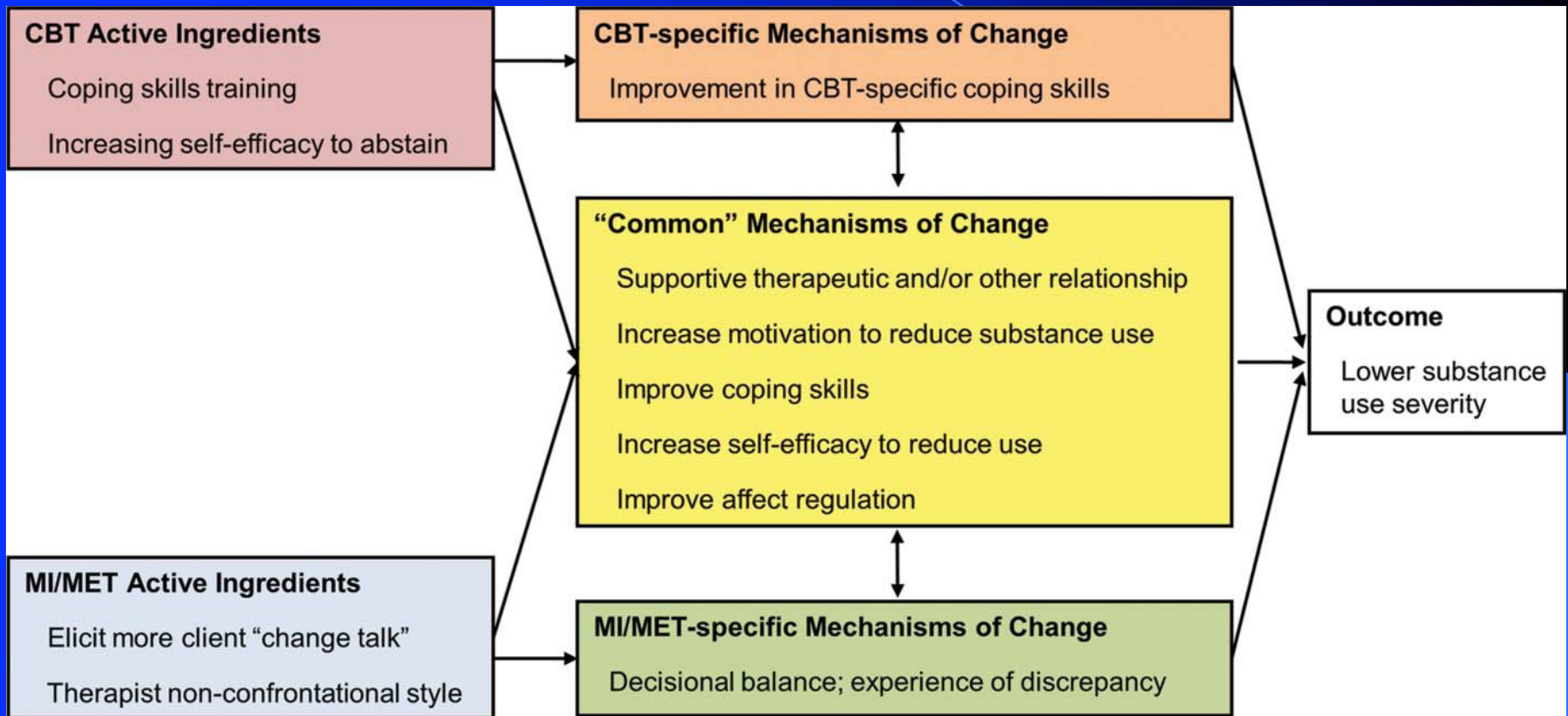
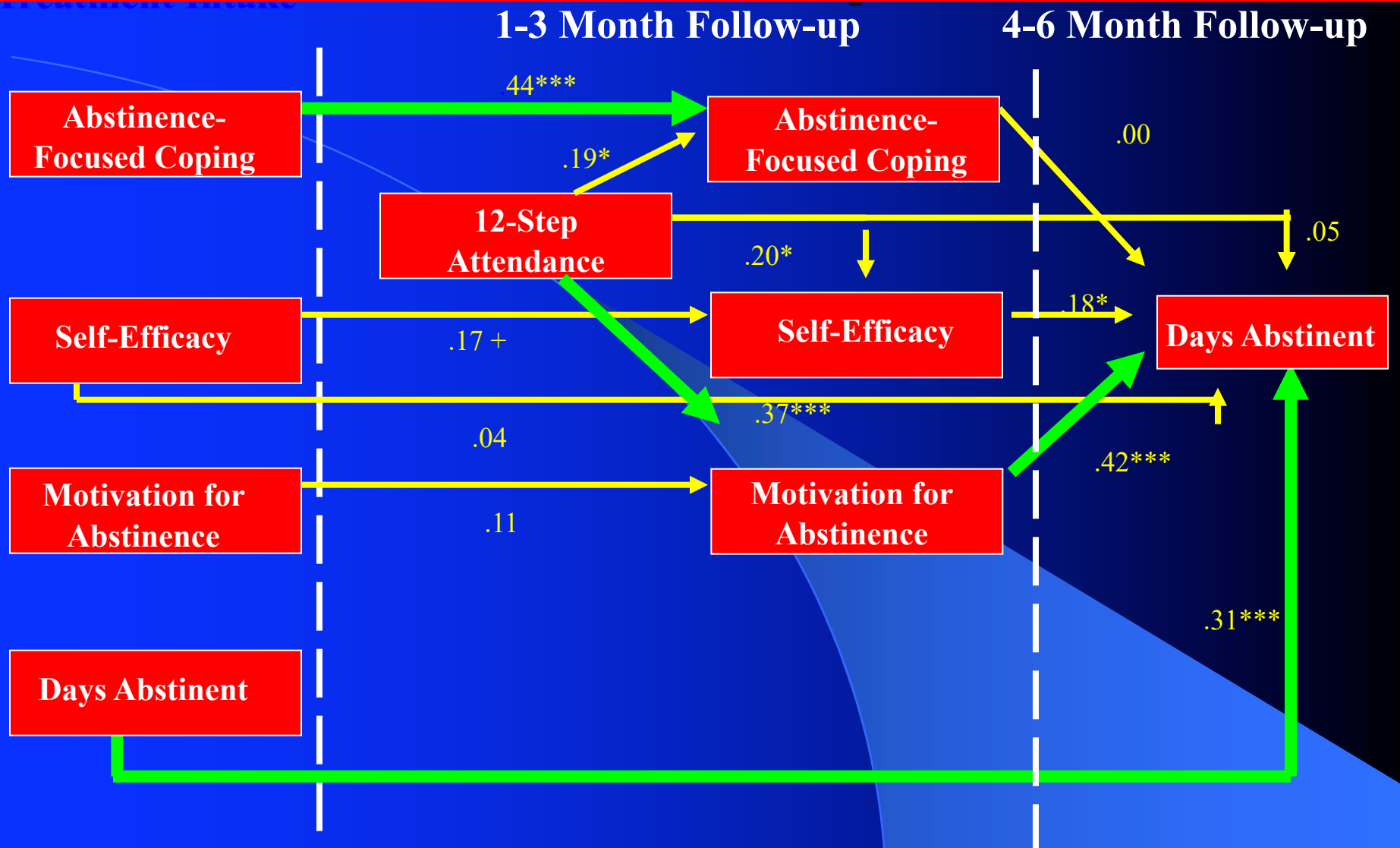


FIGURE 1. Proposed relationships between therapy-specific active ingredients, "common" and "therapy-specific" mechanisms of change, and treatment outcome. CBT D cognitive-behavioral therapy; MI/MET D motivational interviewing/Motivational Enhancement Intervention.

12-Step Participation: How Does it Help Youth ?

Treatment Intake



How Does Treatment Work?

- Individuals differ in trajectory of response to treatment (continued heavy or low levels use, reduction or increase of use)
- To date, research has not supported therapy-specific mechanisms of change
- “Common” processes of change largely account for improvements in outcomes across distinct Tx’s.
- MBCs may operate as part of a causal chain of processes leading to specific outcomes (Black & Chung 2014)

Mediator-Moderator

- A mediator is a variable that represents a MBC
- It might point to/be associated with a MBC
- Example: increased Self-efficacy (SE) might point to the mechanism of cognitive restructuring in CBT, which may, in turn, be associated with increased SE (Black & Chung, SAJ 2014)
- A moderator (e.g., gender) can provide info “for whom” Tx has a greater or lesser effect. (Pt-Tx Matching)

MBC from a Developmental Biological Perspective

- Understanding how psychotherapy works at the level of brain functioning
- Client neurocognitive characteristics and Tx response (e.g., reduced relapse)
- Neuroimaging (fMRI), response pathways and MBCs
- E.g.: “Change Talk” inhibited activation in brain regions that respond to alcohol cues (Feldstein et al. 2011) or increased activation in areas involved in introspection associated with reduction of cannabis use (Feldstein et al. 2013).
- Targeting smaller units of cause-effect for greater precision

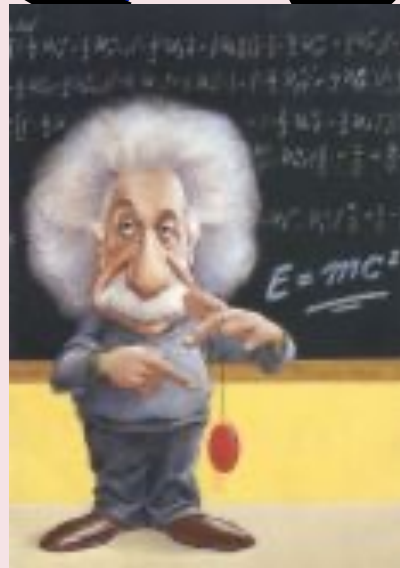
“When Interventions Harm: Peer Groups and Problem Behavior”

Iatrogenic/Contagious Effects: “ High-risk youth are particularly vulnerable to **peer aggregation**, compared with low-risk youth. Association with deviant peers in early adolescence, **under some circumstances**, inadvertently reinforces problem behavior”



(Dishion et al., 1999)

Einstein's: Mass-Energy equivalence $E=MC^2$ Applies to Youth Networking?



Premature Generalization of Dishion's Assertion?

- While basing their conclusions on prevention research among youths who were studied at a developmental stage between pre to early adolescents, many have generalized the assertion to ALL groups, disregarding even Dishion's emphasis on **“under some circumstances”**.
- This led to the unwarranted conclusion that group therapy is harmful and therefore should not be conducted, research and funded

Positive Outcomes for Adolescent Substance Abuse in Group Therapy

- Cannabis Youth Treatment (CYT) Study: Dennis et al. (2004)
- CBT: Kaminer et al. (1998; 2002)
- CBT: Waldron et al. (2001)
- Minnesota 12 Steps: Winters (2000)

Absence of Contagion Effects in Group Therapy: CYT Study

- The study of 400 youths indicated, therefore, that group composition in terms of Conduct Disorder symptoms was **not** associated with worse substance use, psychological, or legal outcomes. There was a slight **advantage** for youth who had high Conduct Disorder when they were included in a group with adolescents who had fewer symptoms.

Maintenance of Treatment Gains

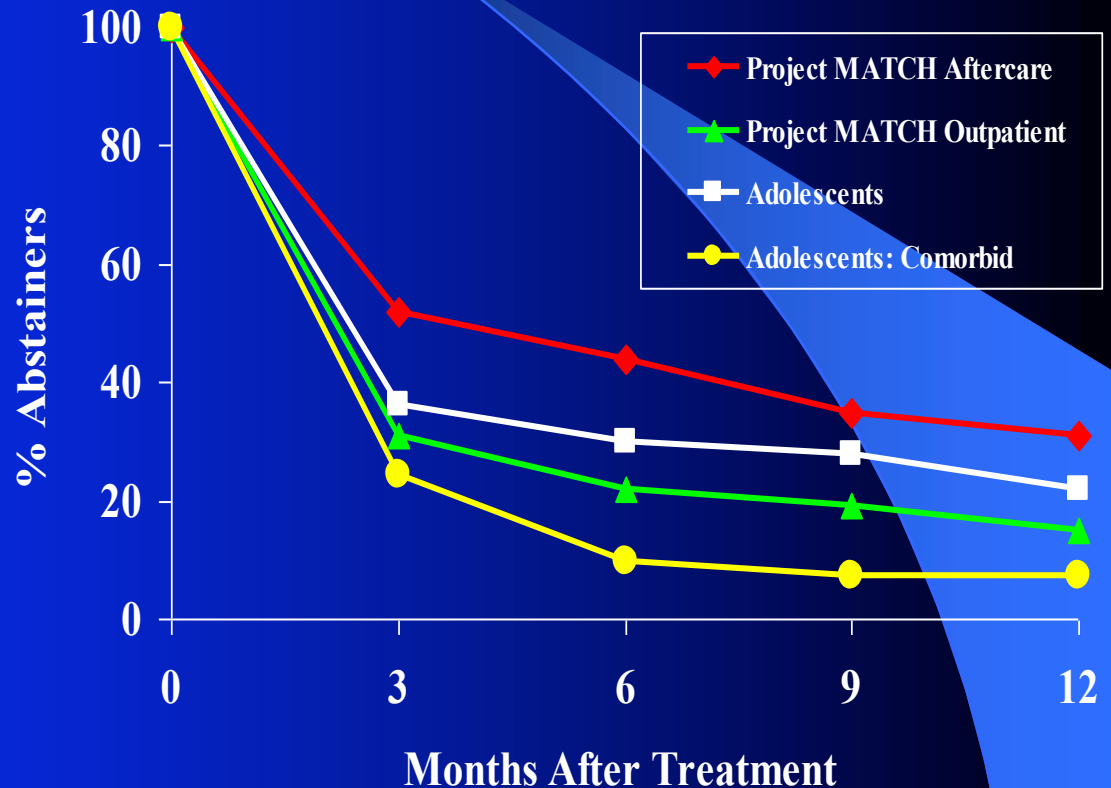
- Abstinence achieved during treatment
- Partial improvement-(Harm reduction?) achieved during treatment
- No treatment gains (continuing-users/non-responders at the end of a treatment period)

(Chung & Maisto 2006)

Survival Rates : Project Match and Treated Adolescents

Psychiatric Comorbidity

- Disruptive Disorders
- Depression & Anxiety
- Reduces Success
- Influences Relapse
- ↑ negative affect
- ↑ cog/beh symptoms
- Situations of Risk
 - Coping w/ Emotions
 - Negative Affect
 - Physical States



Following a Course of Alcohol or Other Substance Use Treatment, Relapse is Common

- It is relatively easier to affect change during after treatment than to sustain those gains >3 months without continued care or aftercare.
- > 60% relapse at 3-12 month post treatment completion (Brown et al. 1989; Dennis et al. 2004; Kaminer et al. 2002)
- “Although improvement is obtained in Tx by a significant segment, pathways to adulthood rarely includes abstinence” (Winters, 2002).

Definitions

- **Continuation:** Intervention aimed at initiating or improving on the gains of the intervention.
- **Relapse Prevention:** Prophylactic intervention focused on the prevention of future substance use episodes.

How Important is Aftercare for Youth with Alcohol or other SUD?

- There is a growing consensus that many of the individuals afflicted with Alcohol or other SUD might develop a chronic disease course (McLellan, 2002). Therefore, early relapse is common without continued care in place.
- The responsibility for continued care has often been left to the unmotivated client
- It is typically limited to “passive” referrals to self-help groups.
- Very few publications on Continued Care for Youth (Godley et al. 2007; Kaminer et al. 2008; Kaminer & Godley 2010)

What is “Aftercare?”

- Unsettled state of partially overlapping terms such as Aftercare, Continued Care, Transition of Care, Step down, Booster Sessions
- Aftercare is a scaled back intervention following the end of a more intensive treatment episode.
- AAAP (Sowers, 2003) defined Aftercare as:
“ A transitions that should incorporate relevant elements of any preexisting Tx plan. Tx plans should be relevant to the entire course of an episode of illness/disability so they can provide a degree of continuity in the context of change” .
- ASAM (2001) p.361 prefer the term Continued Care

Future Recommendations

- Alternative, additional or integrative modalities of aftercare should be further explored during, and after completion of index intervention.
- The development of dynamic/adaptive regimens of interventions in which decisions to continue or modify a particular therapeutic protocol are made on the basis of clinical response.

Common Concerns in Mental Health and Substance Use Disordered Youth

- Most youth are dually diagnosed
- Chronic, recurrent course
- Poorer coping skills
- Fewer social resources
- Risk appraisal deficits
- Family disruption
- Exacerbate symptom severity
- Reduced compliance
- Treatment should address problems simultaneously

Limitations of Existing Pharmacotherapy Research and Treatment

Psychiatric Disorders

- ADHD
- Depression
- Anxiety

Common Neurobiological Targets

Substance Abuse

- Reduce craving and use
- Relapse prevention

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